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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/532,233

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Thomas Hill

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CONNOLLY BOVE LODGE & HUTZ LLP
1875 EYE STREET, N.W.
SUITE 1100
WASHINGTON, DC 20036

EXAMINER

MARTINEZ, BRITTANY M

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/532,233	Applicant(s) HILL ET AL.	
	Examiner BRITTANY M. MARTINEZ	Art Unit 4116	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☒ Claim(s) 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/22/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Citation to the Specification will be in the following format (S. p. #, l. LL) where # denotes the page number and LL denotes the line number. Citation to U. S. Patent literature will be in the format (Inventor, c. #, l. LL) where # is the column number and LL is the line number. Foreign patent literature will be in the format (Inventor, p. #, l. LL) where # denotes the page number and LL denotes the line number.

Status of Application

1. **Claims 1-20** have been examined.

Priority

The instant application is a national stage entry of PCT/EP03/11410, filed October, 15, 2003, which claims priority to DE 10249368.5, filed October 23, 2002.

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.
3. Should applicant desire to obtain the benefit of foreign priority under 35 U.S.C. 119(a)-(d) prior to declaration of an interference, a certified English translation of the foreign application must be submitted in reply to this action. 37 CFR 41.154(b) and 41.202(e).

Failure to provide a certified translation may result in no benefit being accorded for the non-English application.

Information Disclosure Statement

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Specification

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: **Claim 5** recites the limitation "stripping is carried out at from 70 to 250°C," while the instant specification does not disclose a stripping range ending with 250°C. The stripping temperature range disclosed in the instant specification is 70 to 150°C (S. p. 1, 0016). **Claim 8** recites the limitation "rinsing is carried out for a period of from 15 minutes to a plurality of days," while the instant specification does not disclose a rinsing time range beginning with 15 minutes. The rinsing time disclosed in the instant specification is 50 minutes to a number of days (S. p. 1, 0019).

2. The disclosure is objected to because of the following informalities: It appears as if "hydrogenation" (S. p. 1, 0020) should be changed to "regeneration." Appropriate correction is required.

Applicant is reminded of the recommended content/layout of the specification:

Content of Specification

- (a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.
- (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.
- (c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.
- (d) The Names Of The Parties To A Joint Research Agreement: See 37 CFR 1.71(g).
- (e) Incorporation-By-Reference Of Material Submitted On a Compact Disc: The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.
- (f) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:
 - (1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."
 - (2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."

- (g) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.
- (h) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.
- (i) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.
- (j) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).
- (k) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet

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published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).

- (l) Sequence Listing. See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

Claim Objections

3. **Claim 15** is objected to because of the following informalities: "...stripping are saturated hydrocarbons" should be changed to "...stripping is saturated hydrocarbons," "...stripping comprises saturated hydrocarbons," "...stripping contains saturated hydrocarbons," or "...stripping includes saturated hydrocarbons." Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. **Claims 12 and 19** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. **Claim 12** recites the limitation "The process for the repeated regeneration of a hydrogenation catalyst" in the 1st-2nd lines of the claim. There is insufficient antecedent basis for this limitation in the claim.

6. **Claim 19** recites the limitation "the hydrogen active metal" in the 1st line of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. **Claims 1-3 and 15-16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang et al. (US 5,332,705) in view of Broecker et al. (US 5,063,194).

8. With regard to **Claims 1, 3, and 15-16**, Huang discloses a process for regenerating a hydrogenation catalyst (Huang, c. 1, l. 8-14; "Abstract") comprising stripping at a temperature of 260°C with a mixture of hydrogen and inert gas (Huang, c. 3, l. 20-24 and 63-64), and wherein the hydrogenation catalyst is formed by an active composition (palladium), which has been applied to a support and which has been used

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in a gas-phase selective hydrogenation of acetylene (Huang, c. 1, l. 8-30). Further, Huang discloses the hydrogen containing gas may also comprise methane (Huang, c. 3, l. 30-34).

9. Huang does not explicitly disclose a nonporous, metallic support (**Claim 1**) or a woven mesh or knitted mesh metallic support (**Claim 2**).

10. With regard to **Claims 1-2**, Broecker discloses a palladium catalyst (Broecker, c 1, l. 5) suitable for selectively hydrogenating compounds containing a triple bond (Broecker, c 1, l. 49-53), wherein the active composition is applied to a metallic mesh, foil, or fabric such as heat resistant stainless steel fabric (Broecker, c 2, l. 12, 18-19, and 24-25).

11. Thus, it would have been obvious to one of ordinary skill in the art to modify the process of Huang with the nonporous, metallic support of Broecker because there would have been a reasonable expectation of success.

12. **Claims 4-5 and 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang et al. (US 5,332,705) in view of Broecker et al. (US 5,063,194) as applied to **Claims 1 and 3** above, and further in view of White et al. (GB 907,348).

13. The aforementioned prior art does not explicitly disclose nitrogen or a mixture of nitrogen and hydrogen used for stripping (**Claim 4**); stripping carried out from 70 to 250°C (**Claim 5**); or stripping carried out from 100 to 150°C (**Claim 17**).

14. With regard to **Claims 4-5 and 17**, White discloses a process for regenerating a hydrogenation catalyst (White, p. 1, l. 13-17) comprising stripping at a temperature of

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150°C with a stream of hydrogen containing gas (White, p. 1, l. 55-66), and wherein the hydrogenation catalyst is formed by an active composition, which has been applied to a support and which has been used in selective hydrogenation of gasolines obtained from thermal cracking processes (White, p. 1, l. 13-17 and 70-71). Further, White discloses the hydrogen containing gas may also comprise other gases inert to hydrogen and the catalyst and support, such as nitrogen or lower-boiling normally-gaseous hydrocarbons (White, p. 2, l. 10-16).

15. Thus, it would have been obvious to one of ordinary skill in the art to modify the process of the aforementioned prior art with the stripping conditions of White in order to prevent damaging the hydrogenation catalyst (White, p. 1, 88-99).

16. **Claims 6-11 and 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang et al. (US 5,332,705) in view of Broecker et al. (US 5,063,194) as applied to **Claim 1** above, and further in view of Cosyns et al. (GB 1,158,418).

17. The aforementioned prior art does not explicitly disclose rinsing the hydrogenation catalyst with a nonpolar organic solvent or solvent mixture in addition to stripping (**Claim 6**); rinsing at ambient temperature (**Claim 7**); rinsing for a period of from 15 minutes to a plurality of days (**Claim 8**); the regeneration process carried out in situ (**Claim 9**); first rinsing the hydrogenation catalyst and subsequently stripping (**Claim 11**); and the regeneration process carried out in a supernatant solvent and/or in solvent circulated by means of a pump (**Claim 18**).

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18. With regard to **Claims 6-11 and 18**, Cosyns discloses a process for regenerating a hydrogenation catalyst (Cosyns, p. 1, l. 10-18) comprising rinsing the hydrogenation catalyst with a nonpolar organic solvent at lower than 200°C (Cosyns, p. 2, l. 15-18 and 34-48) for a period of from 15 minutes to 24 hours (Cosyns, p. 2, l. 65-66) in situ (Cosyns, p. 2, l. 23-24), and then stripping at a temperature of 200°C with hydrogen (Cosyns, p. 2, l. 19-21), and wherein the hydrogenation catalyst is formed by an active composition, which has been applied to a support and which has been used in a gas-phase selective hydrogenation of acetylene (Cosyns, p. 1, l. 10-18 and 25-26).

19. With regard to **Claim 7**, in view of *In re Boesch*, this claimed temperature limitation is considered to be a result effective variable and therefore may obviously be predetermined and optimized at the time the invention was made by one having ordinary skill in the art.

20. With regard to **Claim 18**, Cosyns further discloses circulation of a solvent through the bed of the washed/deactivated catalyst (Cosyns, p. 2, l. 20-24 and l. 61-65). It is well known in the art that a pump is an obvious means of circulating.

21. Thus, it would have been obvious to one of ordinary skill in the art to modify the process of the aforementioned art with the rinsing process of Cosyns in order to obtain an improved hydrogenation catalyst regeneration method (Cosyns, p. 1, l. 10-11).

22. **Claim 10** is rejected under 35 U.S.C. 103(a) as being unpatentable over Huang et al. (US 5,332,705) in view of Broecker et al. (US 5,063,194) and Cosyns et al. (GB

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1,158,418) as applied to **Claim 6** above, and further in view of White et al. (GB 907,348).

23. The aforementioned prior art does not explicitly disclose the regeneration process carried out ex situ (**Claim 10**).

24. With regard to **Claim 10**, White discloses ex situ regeneration of the hydrogenation catalyst (White, p. 2, l. 78-81).

25. Thus, it would have been obvious to one of ordinary skill in the art to modify the process of the aforementioned art with the ex situ regeneration of White because there would have been a reasonable expectation of success.

26. **Claim 12** is rejected under 35 U.S.C. 103(a) as being unpatentable over Huang et al. (US 5,332,705) in view of Broecker et al. (US 5,063,194) as applied to **Claim 1** above, and further in view of Huang II et al. (WO 94/00232).

27. The aforementioned prior art does not explicitly disclose repeated regeneration of a hydrogenation catalyst, which comprises regenerating the hydrogenation catalyst two or more times by stripping or by rinsing and stripping and subsequently by oxidative treatment or a combination of stripping or rinsing and stripping and oxidative treatment (**Claim 12**).

28. With regard to **Claim 12**, Huang II discloses that although regeneration is attained without necessitating additional or associated regeneration steps, it may be desirable to clean carbonaceous deposits from the catalyst support because stripping does not result in complete removal of carbonaceous deposits from the catalyst support.

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Thus, an occasional additional oxidation step may be necessary (Huang II, p. 12, l. 18-34).

29. Thus, it would have been obvious to one of ordinary skill in the art to modify the process of the aforementioned prior art with the additional regeneration steps of Huang II in order to obtain a regeneration process that prevents restriction of flow rate and pressure in the regenerated hydrogenation catalyst (Huang II, p. 12, l. 31-34).

30. **Claims 13-14 and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang et al. (US 5,332,705) in view of Broecker et al. (US 5,063,194) as applied to **Claim 1** above, and further in view of Hicks et al. (US 5,130,172).

31. With regard to **Claims 14 and 19**, Huang discloses palladium as a hydrogenation-active metal in the process for regenerating a hydrogenation catalyst (Huang, c. 1, l. 8-14; c. 3, l. 45-60; and "Abstract").

32. The aforementioned prior art does not explicitly disclose a thin-film catalyst (**Claim 13**).

33. With regard to **Claim 13**, Hicks discloses thin-film palladium catalysts (Hicks, Claims 1 and 18-19).

34. Thus, it would have been obvious to one of ordinary skill in the art to modify the process of the aforementioned prior art with the thin-film catalyst of Hicks in order to obtain a process capable of regenerating high purity hydrogenation catalysts (Hicks, c. 1, l. 32-34).

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35. **Claim 20** is rejected under 35 U.S.C. 103(a) as being unpatentable over Huang et al. (US 5,332,705) in view of Broecker et al. (US 5,063,194) and Hicks et al. (US 5,130,172) as applied to **Claims 13-14 and 19** above, and further in view of Huang II et al. (WO 94/00232).

36. The aforementioned prior art does not explicitly disclose silver doped palladium (**Claim 20**).

37. With regard to **Claim 20**, Huang II discloses a process for regenerating a silver doped palladium hydrogenation catalyst (Huang II, p. 1, l. 8-14; p. 10, l. 20-21).

38. Thus, it would have been obvious to one of ordinary skill in the art to modify the process of the aforementioned prior art with the silver doped palladium catalyst of Huang II because there would have been a reasonable expectation of success.

Conclusion

1. No claim is allowed.
2. In general, prior art renders the claimed invention obvious.
3. Applicant is required to provide pinpoint citation to the specification (i.e. page and paragraph number) to support any amendments to the claims in all subsequent communication with the examiner. **No new matter will be allowed.**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRITTANY M. MARTINEZ whose telephone number is

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(571) 270-3586. The examiner can normally be reached on Monday-Thursday 7:00AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Wayne Langel/
Primary Examiner, Art Unit 1793

BMM

/Brittany M Martinez/
Examiner, Art Unit 1793